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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

ZERVIGNON, R

ART UNIT

PAPER NUMBER

1763

DATE MAILED:

04/25/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/460,638

Applicant(s)
Flugaur et al

Examiner
Rudy Zervigon

Art Unit
1763



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Dec 14, 1999

2a) ☐ This action is FINAL.

2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle* 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-11 is/are pending in the applica

4a) Of the above, claim(s) _____ is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-11 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

20) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Dependent claim 11 requires the method of Claim 9, further comprising, "prior to said inserting (screws holding plates 272,239; Fig. 2B), the steps of....", where independent claim 9 requires "the aperture ("within cylinder 238"; col. 18, line 53) having the device (items 271, 270; Figure 2B; col. 18 lines 33-59) of Claim 1 therein, then...". It is unclear how the "device" can be both inside the chamber and outside the chamber.
3. Claim 11 recites the limitation "inserting" in claim 11. There is insufficient antecedent basis for this limitation in the claim.

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Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Foster et al (U.S.Pat. 5,665,640). Foster et al teach a device (items 271, 270; Figure 2B; col. 18 lines 33-59) and method for its fabrication comprising:

- i. an outer portion (items 271, 270; Figure 2B; col. 18 lines 33-59) comprising an electrically insulative material ("ceramic insulator"; col. 18 lines 42-43), having dimensions effective to prevent or inhibit plasma (col. 18, lines 33-58) arcing (col. 18 lines 50-58) to an electrically conductive surface (item 222; Fig.2B; col. 18 lines 50-58) of a plasma (col. 18, lines 33-58) processing chamber (item 40; Figure 2) aperture ("within cylinder 238"; col. 18, line 53), and
- ii. an inner opening (item 256; Fig.2B; col. 18, lines 33-58), completely surrounded by the electrically insulative material ("ceramic insulator"; col. 18 lines 42-43) of the outer portion (items 271, 270; Figure 2B; col. 18 lines 33-59), having dimensions effective to enable transmission of a physical signal ("RF"; col. 18, line 54) or a gas, gas mixture or other material through the device (items 271, 270; Figure 2B; col. 18 lines 33-59)

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- iii. 2. A plasma (col. 18, lines 33-58) processing chamber (item 40; Figure 2) having at least one aperture ("within cylinder 238"; col. 18, line 53) therein, the at least one aperture ("within cylinder 238"; col. 18, line 53) having an exposed electrically conductive surface (item 222; Fig.2B;col. 18 lines 50-58), and located inside the aperture ("within cylinder 238"; col. 18, line 53)
- iv. 3. A method of making a plasma (col. 18, lines 33-58) processing chamber (item 40; Figure 2), the chamber (item 40; Figure 2) having at least one aperture ("within cylinder 238"; col. 18, line 53) therein, the at least one aperture ("within cylinder 238"; col. 18, line 53) having an exposed electrically conductive surface (item 222; Fig.2B;col. 18 lines 50-58) , the method comprising inserting (screws holding plates 272,239; Fig. 2B) the device (items 271, 270; Figure 2B; col. 18 lines 33-59) of Claim 1 into the aperture ("within cylinder 238"; col. 18, line 53)
- v. 4. A method of processing a workpiece, comprising the following steps:
- vi. (A) exposing the workpiece to a plasma (col. 18, lines 33-58) in the chamber (item 40; Figure 2) of Claim 2
- vii. (B) transmitting a physical signal ("RF"; col. 18, line 54) or a gas, gas mixture or other material through the device (items 271, 270; Figure 2B; col. 18 lines 33-59) into or out from the chamber (item 40; Figure 2)
- viii. 5. A plasma (col. 18, lines 33-58) processing chamber (item 40; Figure 2) having at least one aperture ("within cylinder 238"; col. 18, line 53) therein, the at least one aperture ("within

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- cylinder 238"; col. 18, line 53) having an exposed electrically conductive surface (item 222; Fig.2B;col. 18 lines 50-58) , and
- ix. a device (items 271, 270; Figure 2B; col. 18 lines 33-59) inside the aperture ("within cylinder 238"; col. 18, line 53), the device (items 271, 270; Figure 2B; col. 18 lines 33-59) comprising an electrically insulative material ("ceramic insulator"; col. 18 lines 42-43) and having:
- x. (i) dimensions effective to prevent or inhibit plasma (col. 18, lines 33-58) arcing (col. 18 lines 50-58) to the exposed electrically conductive surface (item 222; Fig.2B;col. 18 lines 50-58) of the aperture ("within cylinder 238"; col. 18, line 53); and
- xi. (ii) an inner opening (item 256;Fig.2B; col. 18, lines 33-58) completely surrounded by the electrically insulative material ("ceramic insulator"; col. 18 lines 42-43) , the inner opening (item 256;Fig.2B; col. 18, lines 33-58) having dimensions effective to enable transmission of a physical signal ("RF"; col. 18, line 54) or a gas, gas mixture or other material through the device (items 271, 270; Figure 2B; col. 18 lines 33-59)
- xii. 6. A method of making a plasma (col. 18, lines 33-58) processing chamber (item 40; Figure 2), the chamber (item 40; Figure 2) having at least one aperture ("within cylinder 238"; col. 18, line 53) therein, the at least one aperture ("within cylinder 238"; col. 18, line 53) having an exposed electrically conductive surface (item 222; Fig.2B;col. 18 lines 50-58) , the method comprising inserting (screws holding plates 272,239; Fig. 2B) a device (items 271, 270; Figure 2B; col. 18 lines 33-59) into the aperture ("within cylinder 238"; col. 18, line

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- 53), the device (items 271, 270; Figure 2B; col. 18 lines 33-59) comprising an electrically insulative material ("ceramic insulator"; col. 18 lines 42-43) and having:
- xiii. dimensions effective to prevent or inhibit plasma (col. 18, lines 33-58) arcing (col. 18 lines 50-58) to the exposed electrically conductive surface (item 222; Fig.2B; col. 18 lines 50-58) of the aperture ("within cylinder 238"; col. 18, line 53), and an inner opening (item 256; Fig.2B; col. 18, lines 33-58) completely surrounded by the electrically insulative material ("ceramic insulator"; col. 18 lines 42-43), the inner opening (item 256; Fig.2B; col. 18, lines 33-58) having dimensions effective to enable transmission of a physical signal ("RF"; col. 18, line 54) or a gas, gas mixture or other material through the device (items 271, 270; Figure 2B; col. 18 lines 33-59)
 - xiv. 7. The method of Claim 6, further comprising, prior to said inserting (screws holding plates 272, 239; Fig. 2B), the step of forming said aperture ("within cylinder 238"; col. 18, line 53) in said chamber (item 40; Figure 2)
 - xv. 8. A method of processing a workpiece (item 228; Fig.2B), comprising:
 - xvi. exposing the workpiece (item 228; Fig.2B) to a plasma (col. 18, lines 33-58) in a chamber (item 40; Figure 2), the chamber (item 40; Figure 2) having at least one aperture ("within cylinder 238"; col. 18, line 53) therein, the at least one aperture ("within cylinder 238"; col. 18, line 53) having an exposed electrically conductive surface (item 222; Fig.2B; col. 18 lines 50-58); and a device (items 271, 270; Figure 2B; col. 18 lines 33-59) in the aperture ("within cylinder 238"; col. 18, line 53), the device (items 271, 270; Figure 2B; col. 18 lines 33-59)

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- comprising an electrically insulative material ("ceramic insulator"; col. 18 lines 42-43) and having
- xvii. (I) dimensions effective to prevent or inhibit plasma (col. 18, lines 33-58) arcing (col. 18 lines 50-58) to the exposed electrically conductive surface (item 222; Fig.2B; col. 18 lines 50-58) of the aperture ("within cylinder 238"; col. 18, line 53); and
- xviii. (ii) an inner opening (item 256; Fig.2B; col. 18, lines 33-58) completely surrounded by the electrically insulative material ("ceramic insulator"; col. 18 lines 42-43), the inner opening (item 256; Fig.2B; col. 18, lines 33-58) having dimensions effective to enable transmission of a physical signal ("RF"; col. 18, line 54) or a gas, gas mixture or other material through the device (items 271, 270; Figure 2B; col. 18 lines 33-59) ; and
- xix. (iii) transmitting a physical signal ("RF"; col. 18, line 54) or a gas, gas mixture or other material through the device (items 271, 270; Figure 2B; col. 18 lines 33-59) into or out from the chamber (item 40; Figure 2)
- xx. 9. A method of operating a plasma (col. 18, lines 33-58) processing chamber (item 40; Figure 2), wherein the chamber (item 40; Figure 2) has at least one aperture ("within cylinder 238"; col. 18, line 53) therein and the aperture ("within cylinder 238"; col. 18, line 53) has an exposed electrically conductive surface (item 222; Fig.2B; col. 18 lines 50-58) , the method comprising the steps of:

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- xxi. (A) initiating a plasma (col. 18, lines 33-58) in the chamber (item 40; Figure 2), the aperture ("within cylinder 238"; col. 18, line 53) having the device (items 271, 270; Figure 2B; col. 18 lines 33-59) of Claim 1 therein, then
- xxii. (B) cleaning (col.30; line 14) the chamber (item 40; Figure 2) and the device (items 271, 270; Figure 2B; col. 18 lines 33-59; col. 18; lines 22-24)
- xxiii. 10. The method of Claim 9, wherein said plasma (col. 18, lines 33-58) exists in said chamber (item 40; Figure 2) for a predetermined period of time (col. 3, lines 1-7)
- xxiv. 11. The method of Claim 9, further comprising, prior to said inserting (screws holding plates 272,239; Fig. 2B), the steps of:
- xxv. exposing a workpiece (item 228; Fig.2B) to the plasma (col. 18, lines 33-58), and transmitting a physical signal ("RF"; col. 18, line 54) or a gas, gas mixture or other material through the device (items 271, 270; Figure 2B; col. 18 lines 33-59) into or out from the chamber (item 40; Figure 2)

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Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S.Pat. 5,567,243; 5,628,829; 5,716,870; 5,866,213; 6,140,215
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 305-3599. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.

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